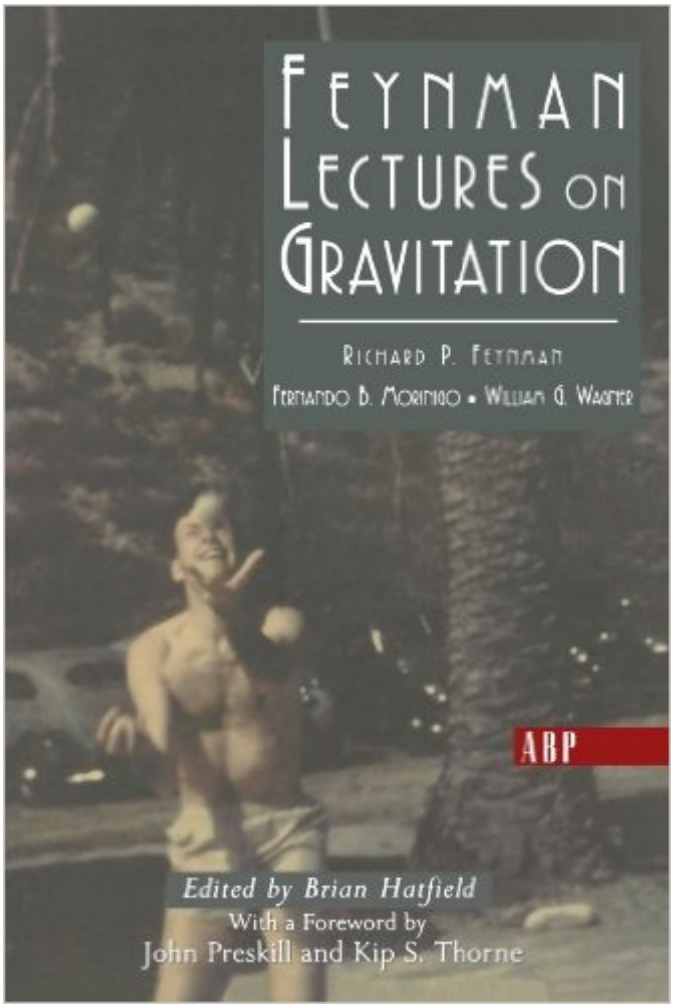
Feynman Lectures On Gravitation (Frontiers In Physics S)



Synopsis

The Feynman Lectures on Gravitation are based on notes prepared during a course on gravitational physics that Richard Feynman taught at Caltech during the 1962-63 academic year. For several years prior to these lectures, Feynman thought long and hard about the fundamental problems in gravitational physics, yet he published very little. These lectures represent a useful record of his viewpoints and some of his insights into gravity and its application to cosmology, superstars, wormholes, and gravitational waves at that particular time. The lectures also contain a number of fascinating digressions and asides on the foundations of physics and other issues.Characteristically, Feynman took an untraditional non-geometric approach to gravitation and general relativity based on the underlying quantum aspects of gravity. Hence, these lectures contain a unique pedagogical account of the development of Einstein's general theory of relativity as the inevitable result of the demand for a self-consistent theory of a massless spin-2 field (the graviton) coupled to the energy-momentum tensor of matter. This approach also demonstrates the intimate and fundamental connection between gauge invariance and the principle of equivalence.

Book Information

Series: Frontiers in Physics S

Paperback: 272 pages

Publisher: Westview Press (June 20, 2002)

Language: English

ISBN-10: 0813340381

ISBN-13: 978-0813340388

Product Dimensions: 6 x 0.6 x 9 inches

Shipping Weight: 1.1 pounds (View shipping rates and policies)

Average Customer Review: 4.6 out of 5 stars 11 customer reviews

Best Sellers Rank: #642,778 in Books (See Top 100 in Books) #264 inÃ Â Books > Science & Math > Physics > Relativity #450 inÃ Â Books > Science & Math > Physics > Mechanics #586 inÃ Â Books > Science & Math > Physics > Quantum Theory

Customer Reviews

d matter and nuclear physics, and to theoretical astrophysics. Editor of Perseus' Frontiers in Physics series and former editor of American Physical Society's Reviews of Modern Physics, Dr. Pines is a member of the National Academy of Sciences, the American Philosophical Society, a foreign member of the USSR Academy of Sciences, a fellow of the American Academy of Arts and

Sciences, and of the American Association for the Advancement of Science. Dr. Pines has received a number of awards, including the Eugene Feenberg Memorial Medal for Contributions to Many-Body Theory; the P.A.M. Dirac Silver Medal for the Advancement of Theoretical Physics; and the Friemann Prize in Condensed Matter Physics.

Liked especially the amplitude to emit gravitons, formula 16.3.4, page 214, and 16.3.5, page 214, the probability of emission of a graviton emission per disintegration.In these two examples, Feynman linked an allegedly abstract particle, the ’quantum’ graviton, with particle decay phenomenology. This is the strength of this volume. I.e. very precise calculationsThe negative, if you can call it that, is that Feynman has in this book, no coverage of the CMBR. I.e. he COULD NOT POSSIBLY know of it. The book, is dated, badly dated, in parts, while other calculations inter relate with amazingly contemporary issues.I.e., if one picks and chooses, many of the calculations are very contemporary in terms of what they say, albeit, that Feynman did ALL of this with NO knowledge of contemporary cosmology. and Inflation.My gripe, is that some of the ideas are old hat, but others are still amazingly pertinent. In all, considering the year, i.e. this 50 year old reference is a gem.

Great book if you want to see the inside thinking behind quantum gravitational field theories. While the lectures are old, the editors make some up to date comments. If you believe that either QLG or String theory are the only right way to QG, perhaps this book is not for you, however if you want to understand the possibilities and limitations of attempting a low energy QG, this is a great reference work.Just like other Feynman lectures, there is an underlining "what if" way of thinking and playful discussions of the possibilities.

I heard some of these in real time long ago. He was a truly great and timeless physicist. We truly miss him and the fun being around him.Michael

satisfactory

outstanding but falls short of Feynman’s best, and he knew it

Great book, love Feynman!

She particularly liked the gray lines on the pages - suggesting to the reader just how likely they were to want to delve deeply into the book.

I got this book looking for a discussion of Graviton theoryand he gave a Feynman diagram for the classical tensor 4dplane wave interpretation. The more modern "virtual"particle as a gauge interaction particle like an Higgs boson or weak field bosons is missing.The idea that a graviton may be a virtual vector -tensor boson with an U(1)*SU(2)/quaterniongroup interpretation relates the theory more closely with weak field interpretations.Feyman is a very good teacher and explains thje equations and the units used very well comparedto the same sort of coverage in the old Weinberg Gravitation and Cosmology classic text.